WATER SUPPLY CITIZENS
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to the Mass. Water Resources Authority

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November 24, 2008

Dear reader,

Alexandra Dawson and Eileen Simonson, authors of the attached paper, circulated it for review to the WSCAC membership, but the final product does not necessarily represent members' individual views or even their concurrence. Although the listing of positions is fairly complete, the paper is not exhaustive. The paper should be considered their parting thoughts after nearly three decades of involvement with the work of the committee and the Commonwealth. Alexandra and Eileen believe the "Perspective" and "Recommendations" sections derive from past WSCAC actions and positions and therefore present them to WSCAC and to members and staff of the MWRA and other agencies to whom they have expressed some variant of them. Some who read the paper may want to use the recommendations as discussion points in future deliberations of important issues. The paper began as a WSCAC product in 2002 and is issued now because the two former directors now had the time to finalize it. Special thanks go out to the past and present members of WSCAC and its staff for their contributions.

Yours sincerely,

Whitney Beals, Chair

Mary Booth, Executive Director

WSCAC: A Brief History of Positions and Actions, and Recommendations for the Future

Note:

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Contents:

Why this Paper?

- To clarify historic WSCAC positions on resource management policy and regulations
- To provide a review of governmental agencies' policies and law, identifying key federal and state initiatives
- To consider the Massachusetts Water Resources Authority's (MWRA) role in regional/state-wide resource policy
- To examine the role of WSCAC in advising the MWRA
- To articulate current thoughts about MWRA and EOEEA policies and agency functions based on historic and emerging WSCAC positions and on MWRA accomplishments.

It has become clear since the water law initiatives of the 1980's, that proposals now coming before the state's resource permitting or approval agencies present nuances of law and complexity of management that are challenging the agencies, including municipalities, that administer our resource laws and policy. New information has emerged about the effects of development on our finite water resources, and new uncertainties have been added by the potential of climate change to modify fundamental ecosystem characteristics, including water availability. For these reasons, and many we have not listed, some adjustments in regulatory interpretation or expansion of policy seem necessary and timely.

WSCAC's historic role

In 1978, the Northfield Citizens Advisory Committee (NCAC) was established under the Massachusetts Environmental Policy Act Unit's (MEPA) "major and complicated" project provisions, to provide a "full formal advisory" role to the Secretary of Environmental Affairs (and the MEPA Unit) in the conduct, public review and assessment of the Metropolitan District Commission (MDC) proposal to divert Connecticut River water to Quabbin Reservoir. The study was called the Long Range Water Supply Study and EIR-2020. In 1980 a revamped, expanded and renamed committee, now called the Water Supply Citizens Advisory Committee

(WSCAC), included greater representation from eastern water users and statewide organizations. In 1990, at the formal conclusion of EIR study, ten alternatives for new water supplies had been reviewed, and the Massachusetts Water Resources Authority (MWRA) decided to favor demand management and source protection as primary water supply strategies to avoid the need for adding new sources. MWRA also formally adopted WSCAC as its water supply advisory group.

WSCAC's committee structure includes an Executive Director (hired by the committee) an office administrator (hired by the director) volunteer members, an Executive Committee, and a Chair who signs the contract for services with the MWRA Executive Director. The Executive Director's position has been shared by three people in most years. A new executive director was hired in 2008. Membership is determined by "joint designation" of WSCAC and the MWRA from a variety of interests or organizations and strives to maintain a parity of donor watershed, user, and statewide organizations or interests. WSCAC is funded directly by the MWRA and provides monthly reports to the MWRA Board of Directors, its membership and other interested parties, on its staff activities, and expenditure of funds for the period. WSCAC provides regular meetings for members and the public featuring speakers on relevant issues. Meetings are also held for the development of WSCAC positions on water related matters.

The contracted role of WSCAC's volunteer members and staff is to "assist the Authority staff and Board in the performance of their duties relating to ongoing and proposed water supply programs and projects." It also states that WSCAC shall "participate in the design, review and evaluation of research and reports and new ideas for programs." WSCAC should "when possible" provide a representative to MWRA working groups, including the MWRA Advisory Board and the Wastewater Advisory Committee (WAC) and their subcommittees.

The current contract states that MWRA expects WSCAC to "provide comments, information, advice, recommendations and guidance as to the direction, intent and execution of water planning and policy." Other WSCAC tasks include maintaining outreach to the larger public that participates in the business of the MWRA and related legislation to "assure informed public input" to MWRA.

The Massachusetts Water Resources Authority (MWRA): A Brief History

The MWRA was established by Chapter 372 of the Acts of 1984. During two or more years prior to 1985, conditions in the Boston Harbor generated lawsuits against the Commonwealth, and resulted in the creation of the new agency. MWRA was to reside politically in the office of the Secretary of Environmental Affairs, who would also be *ex-officio* Chairman of the MWRA Board of Directors. The MWRA would not be subject to the Secretary's jurisdiction as is the case for the other environmental agencies. The MWRA's predecessor agency, the Metropolitan District Commission, had failed to maintain sewer infrastructure, and the ecosystem within Boston Harbor was wholly declining. Nor was the water system faring very well because of excessive leaks in the gravity flow system and the failure to ensure reliability through construction of a promised second delivery conduit from the central Massachusetts reservoirs to the metropolitan area. All charges for service required approval of the state legislature, and rates were not consistent with the operating or maintenance needs of the sprawling water and

sewer systems. The new legislative remedy and purpose was to remove from direct state budgetary jurisdiction the revenues and expenditures of the largest water and sewer utility in the region and to ensure the proper maintenance and management of infrastructure, services, and the vast state-owned water supply watershed acreage, mostly in central Massachusetts.

Legislation established the new Authority with an eleven member Board of Directors, with five members appointed by the Governor of Massachusetts: the Secretary of Energy and Environmental Affairs, *ex officio,* two persons from donor water supply areas of the Connecticut and Merrimack Basins, and two from communities with severe impacts from the construction of the new Boston Harbor Deer Island wastewater plant and renewed Nut Island wastewater treatment works (Winthrop and Quincy respectively). Of these five appointees, one must be a minority person. Of the remaining six Board members, three are appointed by the Mayor of Boston, and three are voted by the MWRA Advisory Board from its membership.

MWRA wholesales water and sewer services to 60 member communities, and the communities retain ownership and control of their own infrastructure systems. The MWRA owns its pipes and tunnels, but not the source water lands, water or water rights that remain with the state. A new watershed division under the Department of Conservation and Recreation manages the MWRA water supply watersheds, assists donor watershed communities in planning, zoning and conservation functions, and identifies and arranges for the purchase of lands to protect source water quality into the future. The watershed activities, including land acquisition, are wholly funded by the MWRA user communities, including payments to towns in lieu of taxes (PILOTS) for land that is acquired for water supply protection, but for which the state holds the title, not the MWRA. MWRA's costs for supporting the watersheds are somewhat defrayed by the revenues from hydro-generation, private logging contracts supervised by DCR on state-owned MWRA watershed lands, and fees for certain public recreational activities at the reservoirs, such as sport fishing and fishing equipment rentals.

MWRA receives revenue as wholesale rates charged to the communities, which cover watershed management by the DCR, all water delivery services and the carrying cost of borrowing to support the capital program. The communities then charge their consumers a combination rate including the MWRA assessments, and the cost of community infrastructure and water/sewer services to consumers. The MWRA's portion of local water and sewer charges is about 60% of retail consumer rates. There are some exceptions to this policy including a separate rate-sector for the communities on the Chicopee Valley Aqueduct which receive only Quabbin water, and for some communities which receive a portion of their water free or at a reduced cost because they host significant facilities, including water sources. No community may resell MWRA water to another community without the Authority's consent. However, emergency provisions of water and emergency interconnections are allowed.

Primary water regulations, established by the MWRA under its enabling act, require full user-system leak detection and repair every two years. Regulations also require contract specifications to be continuously met by water communities that were not originally part of the system but have subsequently joined. Thirty-three communities receive all water and sewer services from the MWRA (counting the Dedham-Westwood Water District as one entity), 10

additional communities receive sewer service only, while 16 communities receive water service only. Among all communities receiving water service, 14 communities buy only supplemental water and retain local sources of supply and independent water treatment facilities (counting the Dedham-Westwood Water District as one entity). MWRA has also developed formal policies which regulate new admissions, provide for emergency service conditions and costs, and regulate service through a 'straddle policy' for admission of facilities for water or sewer service which are only partially located in an MWRA-served community.

The water and sewer systems were kept separated within the MWRA Enabling Act, for purely historic reasons, and to provide separate capital program accounting and fee setting for the user communities. To this day there are significant differences in how these services are treated. For example, more obstacles are placed on the extension of the water system, in part because of the work of WSCAC. Requirements for water service admission to the MWRA as well as the agency's stewardship responsibilities are found primarily in SECTIONS 8(d) and 8(e) of the enabling law which mirror many of the provisions of the Interbasin Transfer Act passed in 1983 to regulate the movement of water and wastewater between different river basins in the state. Section 8(e) charges the MWRA with preferring water conservation to system expansion. No effort is made to control growth within any served community. The overall aim of both laws is to require environmental reviews and to encourage communities to rely on their local water supply sources to the greatest degree possible, using such tools as leak repair, metering, control of summer use, and aquifer protection. This approach is in stark contrast to the management by the previous state agency, which had promoted and even legislated system expansion by requiring abandonment of local sources when the original communities joined the system. In fact, the ITA and provisions of the enabling act were adopted in response to the MDC proposal in 1978 to implement new water supply diversions.

MWRA regulations and enlightened system operations have paid off in an astonishing reduction of wasted water throughout the system and its service communities: an approximate one-third reduction in demand, much of it in the urban core water-served communities of the system. Moreover, there is now a second tunnel to reliably deliver water to the metropolitan area.

MWRA's water sources are unique, even among other large urban systems. The Quabbin and Wachusett Reservoirs are the largest man-made water bodies in the country dedicated solely to drinking water (with a few allowed recreational exceptions.) The Quabbin results from impoundment of the Swift River (1939), a tributary of the Connecticut River, and the Wachusett Reservoir by the impoundment of the South Branch of the Nashua River (1898), ultimately tributary to the Merrimack River.

The reservoirs store about four years of water supply in drought-of- record conditions (eastern U.S. drought of the 1960's). However, there have been many years when overall demand exceeded even that vast capacity, precipitation was low and the system saw a decline in storage. MWRA (1989-1990) developed a drought response plan based on expected seasonal reservoir elevations. The system is required by law to release reservoir water to the downstream rivers which were impounded. The Wachusett Reservoir is required to release 12 million gallons per week (1.7 GPD) to the south branch Nashua River. The Quabbin must release an amount which

when combined with watershed inflow reads as 20 million gallons per day (MGD) at the W. Ware gauge on its impounded Swift River. By law, the MWRA/DCR must also release additional water to the Swift in the months of June 1 through November 30, depending on the flow of the Connecticut River as read in Montague, MA. This increased release was required to maintain barge traffic on the river in Hartford, Connecticut.

In 1989, the MWRA determined that new river diversions for supply would be politically unacceptable and decided to implement a series of programs to control and reduce demand (with the urging of WSCAC and other environmental interests). Reducing demand was very successful with demand continuing to drop to the present (partly resulting from a leak detection and repair program in its own transmission system and by the communities and partly the result of increased cost of services because of bonding for system improvements). Because of demand reduction, the MWRA can frequently release up to 100 million gallons per day (MGD) from the Wachusett Reservoir and finds Quabbin spilling in most seasons, with no loss in ability to service all water demands and current statutory release requirements. Although both impounded rivers receive much more water in recent years because of demand reduction, neither river receives a flow regime consistent with the naturally occurring seasonal flow that existed prior to construction of each reservoir.

The reservoirs are not built for sensitive flood control and function in an interconnected manner: all water from Quabbin passes through the Wachusett Reservoir on its way to the metropolitan area. Such transfers are therefore constrained by the existing storage in Wachusett at any given time, and its limited ability to intentionally release water. The Swift River releases have historically been used to generate hydropower at the Winsor Dam, but the station was destroyed by fire in the early 1990's and reactivation of the generating capability would require a new application to the Federal Energy Regulatory Commission (FERC), which MWRA has resisted.

The MWRA has funded a multi-billion dollar sewer and water system improvement program. Simultaneous with completing the new Boston Harbor wastewater treatment facilities, the MWRA implemented a large water system infrastructure program including the MetroWest Tunnel (which provides system redundancy); covered storage facilities for water quality control, extensive watershed and reservoir management programs including land acquisition and bird harassment.

A significant change at the MWRA is the establishment of an annual capital program spending limit, which causes a tension between the ongoing evaluation of water and sewer system conditions, although revenues and expenditures for water and sewer service remain separate by law. WSCAC has always supported the development and maintenance of a Master Plan for the agency, and a 20-year plan has recently been issued. Among the issues reviewed in the Master Plan is an assessment of the consequences of a failure to make timely repairs. MWRA currently believes that it can expand its water service to new communities without detriment to the system. Although the bonded sewer costs of the system are higher than the water costs, MWRA believes the rate-base from an expanded water system would alleviate some of the burden on the consumers that receive both water and sewer services from the MWRA.

The MWRA Advisory Board

SECTION 23 of the MWRA's Enabling Act established an advisory board of voting representatives from each of the cities and towns which use MWRA water or sewer services, a representative of the Metropolitan Area Planning Council and six gubernatorial appointees: one representative from the Connecticut River Basin area, one from the Quabbin/Ware watershed area, and one from the Wachusett area, one knowledgeable in environmental protection, and two persons with scientific or environmental background, from organizations directly concerned with "recreational or commercial uses of Boston Harbor." The Advisory Board is comprised of 100 votes distributed annually on "a fractional" basis dependent on the charges for services to the community. In other words community water demand or use of sewer services determines the weighted vote. The MAPC and the six gubernatorial appointees have five of the one-hundred votes, collectively.

The charge to the Advisory Board is primarily to elect from its membership, three representatives to the MWRA Board of Directors and to review and advise on the MWRA's budgets for water and wastewater, both capital and operating, including asset management and planning, and to evaluate the rate-setting consequences of all these. The Advisory Board staff also works with MWRA staff in the writing of regulations and policies, and includes WSCAC and the Wastewater Advisory Committee (WAC) as voting members on such *ad hoc* policy committees. The Advisory Board may hold hearings on budgets and other MWRA matters and may make recommendations to the Governor and the legislature on MWRA and its programs.

Under the MWRA enabling act the Advisory Board hires an Executive Director, who, with the assistance of Advisory Board staff and consultants, acts in the name of the Advisory Board on matters of program, projects, finance and more. The Advisory Board has a staff of four, in addition to the director, including a person dedicated to the extensive governmental relations the Advisory Board must participate in to do its job, and two persons dedicated to financial analysis; all staff participate in policy development and review. The Advisory Board prides itself on savings millions of dollars for the MWRA and in procuring state financial support.

In scheduled monthly meetings, and through field trips and special hearings, the Advisory Board keeps all of its members apprised of the political and financial climate in which the MWRA and its user communities will be operating, and taking action if needed.

The Wastewater Advisory Committee

The citizen wastewater committee was established before MWRA came into existence. Its charge, as the Facilities Planning Citizens Advisory Committee (FPCAC), was to advise the former MDC and the Department of Environmental Protection (DEP) on the consulting reports and information which would result in the location and type of treatment needed to end the continuous pollution of Boston Harbor and its environmental, recreational and economic consequences.

With MWRA's establishment and the start of the Boston Harbor clean-up, the FPCAC, like WSCAC, was adopted by the MWRA's Board of Directors in 1990 as the MWRA's official

citizen Wastewater Advisory Committee (WAC). WAC members, including an MWRA appointee, hire an executive director to manage the committee's interests, draft letters or comments, and to provide monthly meetings to keep the membership informed. WAC addresses the multi-billion dollar program of sewer service improvements that remain under court oversight. Citizen representatives from a variety of interest groups or affiliations work with MWRA staff and outside parties to consider the impact of costs on consumers, but most importantly the planning and management programs that must be implemented to assure the continuation of benefits to the regional and harbor environment. WAC emphasizes ongoing master planning, and maintenance of facilities; reviews and comments upon the National Pollution Discharge Elimination System permits for MWRA and assesses the need for additional large-scale system work such as remediation of combined sewer overflows (CSO's). WAC has held conferences on issues of interest.

WAC's role is to continue to look at the larger sewer service and infrastructure issues, in contrast to special community groups that are concerned with local impact issues of specific construction projects.

NOTE: MWRA has developed and financially supports a broadly based relationship to citizens of the Commonwealth, through WSCAC, WAC and its Advisory Board, and through the periodic development of *ad hoc* committees. Some of its citizen advisors are directly impacted by MWRA's actions, while others are interested in developing sound policy in the state.

Some of WSCAC's Water Resource Activities and Positions

Overall, WSCAC has operated on principles such as:

- Favoring water conservation, use efficiency and system management over new or increased interbasin diversions
- Favoring source protection and watershed management, assistance to watershed communities, and infrastructure improvements in preference to filtration for source water
- Improving the legal/regulatory milieu in which MWRA and other water systems operate.
- Participating in the formation of state and federal water resources policy
- Integrating water and wastewater policy
- Educating the public
- Increasing instream flows and downstream releases from reservoirs to maintain or improve river ecology
- Encouraging the MWRA to implement state water policy initiatives in its contracts with communities.

Some Major WSCAC Positions Adopted by Vote or Consensus

1978:

- Informed citizen participation is needed in resource management/allocation decisions.
- Interbasin river diversions should be measures of last resort, allowed in response to demonstrated need, not blind demand. State and Congressional resolutions supported this position. Proposed as the Interbasin Transfer Act (ITA), approved in 1983

1980:

- Local water sources must be protected and unnecessary abandonment prohibited
- Service delivery and resource management require "trigger planning", a system of dynamic, continuous planning and policy review. The system must develop and use evolving data bases regularly review operating assumptions and strategies; observe demographics of service area and region, monitor and manage for resource quality, complete emergency plans; and, provide public accountability for resource use and goals and measures of efficiency
- Outreach should be made to businesses for water audits and conservation using the Gillette Company as a model

1983:

- Demand management and supply conservation, especially leak detection and repair are the best, most cost-effective sources of new water for water systems
- MWRA enabling act must provide donor watershed representation on the Board of Directors, include citizen oversight and include Interbasin Transfer Act philosophy (passed 1983)
- Supported passage of the Water Management Act containing a water-use accounting system (passed 1985)

1985:

- MWRA water system should provide redundant delivery systems (new tunnel); develop efficiency and source protection regulations for continuation of contract communities, and regulations for leak detection, and provide assistance to the communities for implementation. This requires MWRA to go beyond the usual water-supply contract model and include conservation requirements

1987:

- Source protection, including land acquisition, drainage and run-off management are the necessary first and best actions to provide healthful, potable water supplies, as promoted in the Massachusetts Watershed Protection Act passed in 1992
- Watershed basins/sub-basins are geographically appropriate planning units for resource management
- Participated in interagency committee drafting the first MWRA/MDC (now DCR) Memorandum of Understanding for dividing agency responsibilities for watersheds versus waterworks facilities.

1989:

- Most communities are not prepared to enforce drought emergency responses. The state should pass enabling legislation to simplify the process in a timely fashion

1990:

- WSCAC Perspective: A Chapter in the concluding MEPA documents closing out the EIR-2020 Study. It summarizes WSCAC positions about demand management, river diversions, water accountability, use efficiency, focusing on the need for planning across the state
- Identified the connection between Wachusett water quality problems (for avoidance of filtration) and the abundance of gulls roosting on the reservoir. DCR bird harassment continues to this day and is primary in meeting requirements under the federal Safe Drinking Water Act (SDWA). WSCAC also supported regional landfill operator education programs to discourage bird feeding on landfill contents.

1992 to 2001:

- Increased emphasis on the impact of water supply takings on rivers, streamflow releases from reservoirs, and watershed protection and management
- Aided MWRA in determining when water is surplus to current needs, and encouraged development of priorities for using any such surplus
- Aided MWRA and communities in drought planning and management, including control of seasonal uses
- Participated in state task force regulatory reform: Title 5, MEPA regulations, forest cutting practices act regulations, regulations governing management of Quabbin reservoir lands
- Anti-degradation and Outstanding Resource Waters designations under the Clean Water Act, and use of pesticides and herbicides in watershed rights of way
- Participated in the development and passage of the Watershed Protection Act (WsPA), also known as the Cohen Bill for the state Rep. instrumental in its development) which established development densities in the watershed tributary stream areas, limited certain activities in sensitive areas and provided a variance process for development in watershed communities
- Agreed to serve as a citizen participation model for U.S. Army Corps of Engineers national study of drought preparedness (MWRA was used as one of six systems)
- Established watershed management and source protection position: Water suppliers must be supported in their authority to manage for water quality protection of drinking water supplies
- Worked to amend the federal Safe Drinking Water Act through a coalition with the Massachusetts Audubon Society, the New England WaterWorks Association (NEWWA), the American Water Works Association (AWWA), and others, to expand and promote public health protection by providing that the basis for water quality requirements be peer reviewed; that watershed management be considered a significant determinant to source water quality; that water system operation and maintenance can lower the risk of water degradation; and that treatment methods other than filtration can be appropriate
- Prepared position paper on MWRA treatment choices, preferring improved disinfection, source protection and infrastructure improvements to filtration; and supported past WSCAC positions on informed citizen participation, regulatory flexibility, and prevention of pollution as primary water quality determinants

- Filed a *brief amicus* on behalf of WSCAC and other groups (the Massachusetts Audubon Society, the Nashua River Watershed Association, the Friends of Quabbin and Rutherford Platt (as an individual) in the EPA suit against MWRA intended to force water filtration on MWRA system. The brief presented a broader view of watershed protection policy than was available in narrow discussion of Safe Drinking Water Act provisions. MWRA prevailed against EPA demands in federal district and appellate courts
- Encouraged DEP and EPA to allow MWRA to meet SDWA requirements by a dual track approach which required MWRA to design filtration and make land provision for such a plant but not build it until and unless the approach taken - land acquisition and water shed management, infrastructure improvement and new disinfection with ozone - failed to meet all standards
- Supported vector studies of birds at Wachusett and Quabbin reservoirs and continuation of harassment program as a key to water quality maintenance
- Pressed for the construction of the MetroWest Tunnel to provide redundancy for water delivery
- Worked on the special committees established to satisfy the need for covered storage in the MWRA transmission and pressure balancing reservoirs to meet requirements of the SDWA
- Reasserted through MWRA system expansion policy that increasing interbasin transfers should be last resort measures and that MWRA system expansion must first provide no negative impact to current users
- Aided MWRA reorganization to consolidate planning functions, furthering connections between water and wastewater services so that the broader development implications of sewer service in particular can be better understood and sewer pipe design can limit mining of groundwater. Expressed concern over reduction in planning staff

2002 to present:

- Responded to MWRA intent to expand the user base to make up for reduced demand with a series of position papers characterizing system expansion as unwise for the long-term
- Worked with the MWRA Advisory Board Operations Committee to increase water use fees for potential user communities and refined the admission policies for water and sewer use
- Participated in a technical working group that developed improved reservoir assessment in order to reduce frequency, and increase effectiveness, of algae treatment at Wachusett Reservoir
- Worked on new ITA policy guidance initiated by the Water Resources Commission
- Continued to provide comments on projects under MEPA review process, especially those which might impact MWRA future users, or state policy interpretation
- Participated in the state Drought Task Force and Drought Response Protocol revisions
- Participated in revisions to the state Water Conservation Standards and state Water Policy
- Continued to review and support MWRA's interaction with state's DCR land protection

and acquisition program in the watersheds

- Wrote with the MWRA Advisory Board and MWRA staff a bill to remove the watershed division's activities and budget from the general fund. Although the bill was withdrawn, another act created the Water Supply Protection Trust, which removed all MWRA funding for the DCR watershed division from the state budget (Amendment to M.G.L.Ch. 10, s. 73ff, 2004)
- Commented upon the impact of new state energy policy favoring alternative energy sources and evaluated the impact on water resources and forest management for biofuel

Important Legal Tools: Massachusetts Water Resources Law (and related Federal law)

The Commonwealth has many laws and policies to regulate water resources. Some of these also reflect federal laws. These statutes and the formal regulations adopted by state and federal administrators to carry out their intent form the larger context of WSCAC's work with the MWRA. Their proliferation over many decades illustrates a lack of integration, the presence of contradictory pressures and in some cases the paradoxical planning effect of a failure to take action. The following section sets out briefly the strengths and weaknesses of some of these legal tools.

Strengths (+) and Weaknesses (-) are designated in the text.

Before 1980

Massachusetts Water Resources Commission
M.G.L. Chapter 620 of the Acts of 1956, amending M.G.L. Chapter 21A sections 8A through 8F: established state agency for water resource planning.

+ First effort at water resource planning in Massachusetts
- WRC was not given real authority until later decades.

Kelly Wetmore Bill
Ch. 737 of 1972. Established the wilderness concept regarding Quabbin Reservoir lands held by the state, although later amended to allow deer hunting ostensibly to protect forest regeneration

Massachusetts Environmental Policy Act (MEPA)
Mass. G.L. 30, ss.61-62H, (originally passed in 1972). Regulations at 301CMR11.00. Established triggering thresholds for different levels of environmental studies, review and schedule for public comment, and publication of such information in the Environmental Monitor

+ Requires Environmental Notices and Impact Reports to MEPA office, in the executive Office of Energy and Environmental Affairs, on all major public and private projects involving significant natural resource impacts and state involvement via funding or permits
+ All potential candidate projects for an EIR must notify MEPA office which selects which projects require EIRs and "section 61 findings" that bind state agencies to carry out mitigation in agency permits
+ Regulations have specific physical thresholds (section 11.03) as opposed to more

discretionary choice
- Relatively few EIRs are required
- No agency is assigned to review EIRs in expert detail, nor is funding available for frequently needed expert opinion
- Legal attack on the Secretary's decisions to require EIR or to certify adequacy of EIRs is almost impossible
- Required Section 61 findings are frequently omitted

Scenic Rivers Acts
M.G.L. Ch. 21A, s. 11C (formerly M.G.L. Chapter 21 s.17B, relocated during EOEA reorganization, 2003) and federal Wild and Scenic Rivers Act, 16 U.S.C. 1271-1287, 1968

+ requires management plans for adjacent land
+ federal designation (requiring special review of any project involving federal dollars or permits) of portions of Sudbury, Assabet, Concord, Taunton and Westfield rivers, and state designation of the North River under the Massachusetts law
- minimal protection of surrounding lands and no real influence on most water projects

Massachusetts' property law on water systems and water districts
relevant to management of water sources and sale of water rights

+ riparian rights system established modest controls over river diversion and pollution
- riparian doctrine focused entirely on human use rights rather than environmental quality groundwater doctrine gave absolute rights to owners of overlying land

Federal Clean Water Act
(first passed as Public Law 92-500 of 1972): major grants for municipal sewers and National Pollution Discharge Elimination System (NPDES) permits for pollution controls and wastewater dilution

+ probably the single most successful environmental law passed in the U.S
- enormous problems in controlling combined sewer overflows (sewage and stormwater) and non- point pollution (non-piped discharges) of surface water, as well as withdrawal of federal funding in recent years
- no real program for groundwater protection or protection of drinking water.

Mass. Clean Water Act
state implementation law for federal program (M.G.L. Chapter 21, now including ss. 26-53).

+ formed context for implementing federal pollution controls and grants
+ included permit requirements for discharge to groundwater
+ since 1978 established and requires regular review of Water Quality Standards including
+ Class-A standards for surface drinking water sources, later more strictly protected as Outstanding Resource Waters (ORWs)
- suffers from an emphasis on classification (definitions of water body classes, but does not prescribe), with few standards and regulatory controls except for Outstanding Resource Waters

- suffers from typical problems of exemptions, grandfathering, lack of funding and poor enforcement

Wetlands Protection Act

M.G.L. 131 section 40 and federal wetlands law, Public Law 92-500, ss. 401 and 404: primary controls over alteration of wetlands bordering surface waters.

+ radically slowed down destruction of bordering wetlands, thereby improving surface water quality
+ limited protection of isolated wetlands achieved by state review under federal s. 401 water quality certification program
+ 1972 transfer of primary authority under state law to local conservation commissions developed grass-roots support for wetlands protection
- although the state law was passed in 1963-1965 and the federal law in 1972, neither program really had any teeth until the 1980s (1983 state regulations, 310 CMR s.10.00, 1977 Clean Water Act amendments)
- both laws contain major exemptions, including agriculture, timbering, and minor fills.
- state law exempts a host of "limited projects" including roads through wetlands.
- both state and federal law are inadequate to control use of chemicals in agriculture, utility, roadway and railroad herbicide spraying.

Massachusetts Constitution, Article 97

(Amended Article 49 in 1972): governs disposition of public lands, (state and municipal) and water resources developed for public use, as well as diversion to other uses

+ requires legislative approval for disposition of resource lands and waters
+ has led to further environmental review under Mass. Environmental Policy Act (MEPA), M.G.L. Chapter 30, ss62-62H
- has not been adequate to prevent dispositions based on political pressures rather than environmental protection

Massachusetts water policy statement and legislative resolution of 1978

Emphasizes local use and oversight of water resources and stipulates that river diversion shall be last resort.

+ state and federal Resolutions against river diversion made Interbasin Transfer Act possible;
- many other policy positions about protecting sources and encouraging water conservation never became law

Massachusetts public health laws

+ M.G.L. Chapter 111: provides Boards of Health with plenary power over wastewater discharges and sources of drinking water pollution
+ 1965 state health regulations control septic systems. (see s. 7 below)
- Although an improvement over prior regulation, not adequate
- Boards of Health often lack the resources to carry out their extensive functions

Since 1980

Non-Abandonment law
Chapter 382 of the Acts of 1981 (amendment to M.G.L. Chapter 92, MDC's enabling act). MDC customer communities may not abandon local sources unless DEP declares that the source is unfit for drinking water purposes

+ discourages casual abandonment of small local sources seen as nuisances because: expensive to maintain/ get in the way of development/ suffer from taste, color, odor problems/ protection of Zone I of wells and Zone A of reservoirs would require more land acquisition
- DEP often allows abandonment of sources under .25 MGD
- DEP sometimes allows abandonment of unfit sources that could be renovated at reasonable cost, because of cost of state inspection

Interbasin Transfer Act
Chapter 658 of the Acts of 1983 amending M.G.L. Chapter 21 ss8B-8D: sets stiff criteria for interbasin transfer of water and wastewater resources

+ has discouraged new interbasin transfers of water
+ emphasizes general efficiency in water use through new ITA Guidance, 1996 and 2002
- application to wastewater transfers still unclear: confusion of donor and receiver basins/ secondary transfers not considered ITAs
- grandfathered interbasin transfers approved under ancient laws whether constructed or not.
- needs stricter efficiency standards
- was not written for but is being applied to the relief of low streamflow problems
- in its application, does not adequately regulate supplemental water use for non-essential uses such as seasonal lawn care or recreational fields including golf courses

MWRA Enabling Act
Chapter 372 of the Acts of 1984: Established an independent Authority for water and wastewater services to prior MDC service area, but MDC retained, on behalf of the Commonwealth, rights to water supply and watershed lands (subsequently transferred to DCR)

+ has broad corporate and governmental powers, including power to adopt Regulations (s.6(e)), bond for capital programs and set its own charges
+ efficiently cleaned up Boston Harbor and built a water supply tunnel for redundancy
- agency is unclear as to extent of its policy and planning powers and obligations, as they impact state water and wastewater policy and planning
- relations with DCR Division of Watershed Protection sometimes frustrating because of delayed DCR administrative action on large purchases including land acquisition

Water Management Act (WMA)
Chapter 592 of the Acts of 1985, amending M.G.L. Chapter 21G: Registered existing ground and surface water withdrawals in excess of 100,000 gallons per day and established a system of

permits for new or increased withdrawals within each river basin; subject to basin safe yield (not yet defined)

+ first essential step toward management of state water resources
+ links ground and surface waters, previously subject to artificial legal differentiation
+ sets up registration data as basis for modest form of water rights
- allocation of water through a balancing of competing uses invites politics at expense of science
- without considering basin yields, allocation system does not protect environment
- grandfathered registrations are politically difficult to change

Watershed Protection Act (WsPA)

Chapter 36 of the Acts of 1992: special protection for MWRA/MDC system lands (with a requirement that DEP provide such protection statewide).

+ innovative control over formerly local decisions about projects near drinking water reservoirs and tributaries and over large aquifers
+ has led to significant upgrades of source-protection plans statewide
+ has provided framework for land management and acquisition protective of reservoirs and tributaries
- strict provisions apply to very limited area of state
- variances and permits can create administrative headaches;
- variance provisions may be subject to abuse;
- lacks controls over stormwater runoff.
- DEP has not fully expanded its implementation statewide.

Federal Safe Drinking Water Act

Amendments of 1989 and 1996: Strict end-of-tap requirements for delivered water from surface sources and groundwater under the influence of surface water; full groundwater standards not developed.

+ woke everyone up to the need for stricter drinking-water standards
- may have driven millions to unnecessary reliance on bottled water
- initially applied mandatory filtration to all systems with different characteristics and water quality issues
- began as end-of-pipe structural solution program, although recent amendments have added some attention to source protection, and new disinfection regulations acknowledge source protection within context of watershed
- to avoid filtration requires better whole system management; filtration plants are the easy solution but not the best environmental solution
- covered storage requirement and the cost of unfunded treatment requirements changed incentives to protect small natural/man-made reservoirs
- long term status of systems relying on non-filtration treatment remains uncertain

Massachusetts Public Health Laws

+ major 1995 revision of Title 5 of the state environmental code (310 CMR s. 15.00), provides increasingly strict standards for septic system siting, construction, maintenance

and review, with special emphasis on drinking-water protection.

+ Family and Children Protection Act (Chapter 85 of the Acts of 2000), limits chemical spraying of school property.
- damaging grandfathering e.g., for cesspools and excessive variance provisions
- to date, no law adequately controls chemical use (fertilizers, herbicides, pesticides, and rodenticides) in agriculture, lawns, utilities, near water supplies, wetlands and sensitive receptors

Rivers Protection Act

Chapter 258 of the Acts of 1996 amending the Wetlands Protection Act, M.G.L. Chapter 131, s. 40: Provides set-backs for development along rivers

+ discourages development within 200 feet from most rivers, including drinking-water tributaries, (protected only partially by Watershed Protection Act and Title 5); set-back reduced to 25 feet in urbanized areas
- loopholes common to rest of Wetlands Protection Act (e.g., 50 types of limited projects permitted in Riverfront Areas) frustrate intent of amendment
- does not protect ponds and oceanfront areas

Changes to National Standard Plumbing Code and the Uniform State Plumbing Code (248 CMR 10.00).

+ reduced the amount of water used in each flush—toilets account for a significant portion of residential water use
- failed to address other major household appliances

Watershed Initiative

Dissolved January, 2003. EOEA administrative program attempted to coordinate all state water resource and wastewater permits on a watershed or sub-watershed basis

+ essential first step towards linking permit review and overall environmental assessment within context of watershed
- to do this properly would require much more funding and political will to overcome weaknesses of Home Rule and state agency hegemony than is currently available

Commonwealth Policies:

Massachusetts water policies are reviewed and approved by the Water Resources Commission, comprised of environmental agency representatives and representatives of the secretary of housing, as well as one environmental organization, well-drillers, and the public. A representative of the Coastal Zone management program has a non-voting seat.

Policies approved by the commission are implemented by inclusion in other agency approval or permitting activities, principally the DEP.

Some policies are:

- Guidance relating to ITA stresses requirements for action prior to approval applications
- Lawn watering guidance issued 2002

- Watershed Initiative (dissolved 2003)
- State Water Policy Statement, 2004 (revision to earlier policy)
- Conservation Standards, 2006 (revision to earlier standards, 1992, 2004)
- Stressed basins: defines stress in rivers which can lead to special limitations on water taking. (This initiative is ongoing within a special task force)
- Streamflows, Index Streamflows (gauged streams used as surrogates for approximating natural conditions in MA streams identified by the USGS) and fish community analysis of stream health to establish some level of water that should be retained in the stream (ongoing within a special task force)
- Drought management planning
- WMA guidance specifically for issuance of WMA permits

Wastewater components of the above laws and regulations are summarized below with the addition of DEP's most recent initiative for comprehensive water and wastewater planning.

- Federal Clean Water Standards as interpreted by Massachusetts.
- MWRA's sewer service requirements, including expansion.
- Title 5, 1965 310 Code of Massachusetts Regulations section 15.00 as revised in 1995: increased leach field set-backs from surface water supplies, tributaries and Zone II recharge areas for public wells.
- Interbasin Transfer Act regulated interbasin transport of wastewater (including groundwater infiltration).
- DEP established engineering level study, comprehensive water resources management planning study (CWRMP), and integrated water resources management planning report (IWRM) requirements to qualify projects for federally supported State Revolving Loan funding. The IWRMs are an innovative attempt to link water and wastewater planning.

Perspective for the Future

The broad perspective reflected in WSCAC's positions is that environmental protection and public health are inextricable. This emphasis merges law, social philosophy and politics.

Current Law and Resource Management Policy.

That said, current law and policy do not represent these realities. It is popular to say that Massachusetts water resources must be managed statewide, or managed regionally. But what do we mean by these phrases? Does all the water in the state belong to the state (as representing the people), so that the state can move it anywhere and give/sell it to any community that expresses a need or desire to have it? Some state officials have always believed this, but our laws, not to mention common beliefs, belie that view. On the "regional" level, is there any law or program requiring cooperation among communities within a single watershed/river basin in the management of surface or ground water? No, there is none. Whatever the broad powers of counties in other portions of the country, the historic basis of Massachusetts polity has in fact been its individual cities and towns, long before "Home Rule" was written into our Constitution. This is where we came from; and from there we must naturally commence every new effort.

With respect to resource management, the basic idea at the grass-roots level seems to be, that every tub should stand on its own bottom. (This is a general American view on many levels) Since this is an obvious impossibility outside of a sparse agricultural society, adage has lately become that every tub should prove, before seeking scarce resources from outside, that it has done its level best to stand on its own bottom. (This is a general American idea on a lot of levels.) However, state officials tend to believe that the state owns all of the water. For example, in building the Wachusett and Quabbin Reservoirs, the metropolitan and state government simply abandoned that above idea and reached out to provide water for the great city. Water was plentiful; it was only a matter of building the infrastructure to move it east. New emphasis on protection of local water sources, however, returns some responsibility to individual communities.

The passage of the Interbasin Transfer Act (ITA) marked a change in state philosophy. At the time, there was no real understanding that the state was getting close to the bottom of its water barrel. The Water Management Act did mark the beginning of this understanding of looming scarcity (as did the Watershed Protection Act), although most people (certainly including state and local officials) still believed there was plenty of water around: It was all a question of proper "management" under the aegis of "good science." This is still the view of a good many water departments, town officials, developers, lawyers, and legislators, who, for example, decry the complex review processes necessary to get a new well. They fail to recognize the actual situation: that, in fact, if they had what they think they want - a single strong state agency, free from political pressure, using conservative science in allocating scarce resources while protecting the environment and the overall supply of water - most of them would not get a permit at all!

Resource management decisions have become vastly more complex in the last two decades. It seems inevitable that watershed basins will need to be recognized as planning units (although the 1990s program had been abandoned), and that wastewater discharge out of basin will be more fully recognized as problematic for local groundwater retention. The continuing expansion of impervious surfaces reduces the opportunity for groundwater recharge, increasing the flashiness of streams and reducing streamflow in summer. The result is severely stressed basins The loss of water-intensive industry in urban centers initially led to reduced water demand, but the reduction is being usurped by sprawling subdivisions with huge expanses of lawns. The strategies and tools needed to manage these problems will be of many and diverse types.

Recognition of Water Resources Needs

There are, however, two other ideas which have to be dealt with separately: Inappropriately identifying MWRA as a summer supplier to rectify low summer streamflow problems throughout many basins, a few MGD at a time, and making communities define "need" for new water in terms of the facilities they want the water for, or the amount of development they intend to allow.

The first notion must be faced squarely because it is in fact where the state is headed, for a combination of reasons including development pressure, environmental complaints, agency

weakness and - not least - what appears to be a "surplus" of MWRA water. It seems to many people that MWRA (and WSCAC) saved all this water just in time to allow unrestrained expansion in the eastern part of the state - rather like Joseph's dream of storing grain against the seven lean years. As WSCAC argues against this simplistic philosophy, it must begin by explaining the real-world difficulty of controlling water use after a community is added to the MWRA system.

As to the question of "real need," it appears more fruitful to look at really efficient management of existing town water resources. For example, if a new industry or mall is willing to "find" in its host community, twice as much water as it will use, should WSCAC (or the MWRA) care what the industry makes or who buys what in the mall?

Solutions Contain Problems

The problems of scarcity are different from the problems of abundance. When WSCAC was formed as NCAC, there was a perceived shortage of water in the then-MDC communities and the growing communities around them. There was also an actual shortage of sewer capacity in the MDC system and a lack of money for communities wishing to sewer.

Now that the dual situation has turned around, the perception of most citizens/communities is, that there is a surplus of MWRA water and an extraordinary capacity at the Deer Island sewage facility. In addition, well-intentioned efforts to remediate septic-system problems by sewering, and to rely on local water supplies, have caused in their turn new problems, especially in groundwater loss, which are not widely recognized: the former by reducing groundwater recharge and therefore river recharge, the latter by mining groundwater sources. (Every solution is a problem). If these trends continue, we will see loss of wells, adverse effects on vegetation, streams running dry and real limitations on development. Fortunately, the new development emphasis on Leadership in Energy and Environmental Design **(LEED)** offers an excellent opportunity to tighten up water use standards, although thus far, more emphasis has been placed on energy savings than on water use efficiency.

Sound Stewardship

From WSCAC's perspective, the MWRA can perform a major stewardship function for its service area and possibly more of the state as an emergency backup for local water systems with demonstrated need. It is difficult for the agency to view its function in this broad way because it is more accustomed to using excess capacity as an economic asset useful for paying down its outstanding debt. It is therefore difficult for MWRA to take seriously several of the WSCAC priorities relating to expansion of the water system.

Without in any way denigrating MWRA's financial needs, it is evident that stewardship will ultimately be to the state's benefit over the long run. Even without the drought possibilities inherent in global warming, water supplies are already in short supply in many states and regions. New England is short on energy sources and balmy climate, but relatively long on water. WSCAC believes that, with prudent management, the MWRA water system will best serve as a bulwark against genuine future shortage.

Recommendations for improvement of existing laws and policy

MWRA

Economic vitality and public health may call upon this system to provide water throughout the central portion of state and more broadly north and south: WSCAC remembers when the water system supply versus demand was severely out of balance – this should never happen again.

1. MWRA should avoid premature allocation that will foreclose the state's options for human consumption.

2. New MWRA service contract communities should be required to meet or exceed state efficiency standards (based on the stress level of the applicant's basin), develop and maintain tight outdoor water use restrictions and develop all local alternative water sources.

3. MWRA Board of Directors should adopt an explicit "safety margin" within the water supply system to insure adequate water for present users and to provide emergency supplies to non-member communities during serious drought.

4. MWRA should modify downstream reservoir releases to better simulate natural flow cycles when feasible (i.e., when reservoirs are not spilling).

5. MWRA Board should tighten present system expansion policy by adopting formal criteria to internally assess proposed expansions rather than relying solely on other state agencies, and a policy of first-come-first-served.

6. MWRA should follow ss. 8(d), 8(e) and s.71 of its Enabling Act, which limits provision of services to communities constrained by contamination of local sources

7. MWRA should improve contract requirements between MWRA and user communities to emphasize and enforce state conservation provisions, especially with respect to seasonal water use.

8. MWRA should require individual system connections for any new user community and thereby disallow telescoping of the system from one community to another.

9. MWRA should avoid expansion of sewer systems that might overburden the sewer system downstream or deplete groundwater resources through infiltration.

10. MWRA should continue to educate consumers to prefer tap water over bottled water.

11. MWRA should cooperate with state agency environmental concerns even though its sizable water system may not be directly affected.

State water policy

1. Efficiency standards must become statewide Regulations and not be confined to DEP permits and community applications to MWRA. This may require state statutory change, because WRC "policy" can now be enforced only when certain permits are sought.

2. The Governor should issue an Executive Order requiring that communities meet state Water Conservation Standards as a condition for receiving some forms of state funding.

3. The MEPA office should issue a policy or Regulation (if necessary) requiring the adoption of efficiency standards as mitigation in communities seeking or suffering large new projects, public or private, that will require significant quantities of additional water.

4. The DEP should refrain from allowing or requiring abandonment of small water sources (primarily wells) that may be needed for current emergency supply or as treatable supply in the future, and mandate ongoing protection.

5. Review DEP aquifer protection requirements to determine if they need to be stricter, especially in protecting groundwater from contamination by commercial, institutional and industrial uses, effluents from package treatment plants designed for large residential projects, (Also to assure appropriate protection for emerging contaminant problems which are illustrated by recently noted medical waste and pharmaceutical and personal care products or "PPCPs").

6. Forbid sale of water resources, state or municipally owned, to water bottling companies

7. Consider all unassigned basins and sub basins as "stressed" until they are fully studied.

8. Increased impervious surfaces and increased runoff depletes groundwater, makes streams more flashy, increases flooding and damages water quality. Require treatment for stormwater runoff for all new projects, not merely those subject to the Wetlands Act, as well as improvements to existing infrastructure. Stormwater must be managed for recharge as well as water quality.

9. All state permits should offset new water withdrawals preferably in a ratio greater than one-to-one.

10. The Mass. Highway Dept and local DPW's should establish more reduced salt application areas and install salt sheds to protect reservoirs, wells and wetlands.

11. Wastewater management should be viewed as a water quantity and quality problem as well as a health issue. More emphasis must be given to Inflow and Infiltration control, and to treating and discharging wastewater in basin.

12. Water takings from rivers should be capped at a much more protective level (as

determined by appropriate river indicator species) than is currently the norm.

13. Water re-use and recycling should be carefully studied in order to balance benefits to resources versus public health hazards.

14. Sewer expansion should not encourage development that threatens sensitive areas. Damage to such areas should not be allowed even when expanded MWRA sewer service is feasible or SRF funding is available.

15. State policy should require full MEPA EIRs for all interbasin transfers and for any MWRA water or sewer service expansion to a community or district not presently served.

Interbasin Transfer Act (ITA):

1. Better define and integrate wastewater/water aspects of the law, which are now handled separately; e.g., when water is imported into basin and then exported as wastewater, that export is not considered jurisdictional, but should be considered an ITA.

2. Unless the ITA is amended it should not be used to remedy low streamflow or support non-essential seasonal outdoor uses.

3. Set more rigorous use and efficiency standards that keep pace with advances in technology to reduce per-capita usage, inflow and infiltration, and unaccounted-for water.

4. The WRC should enforce without exception the ITA provision that required implementation of its requirements before approvals are issued.
5. Put more emphasis on protection of local sources, including those not now in use, whether "resting" or only potential.

6. Improve wastewater review so that wastewater export approvals do not relate solely to sewer pipe capacity but rather improve groundwater recharge and remedy stormwater problems.

7. Amend ITA Guidance so that very old transfer approvals may be deemed "stale" (as in the MEPA Regulations) and presumed invalid by the WRC.

Water Management Act (WMA)

1. Establish a Water Use hierarchy for permits. Current policy makes no distinction between uses listed in the WMA.

2. As required in the WMA, establish streamflow requirements that approximate natural flow cycles for each basin/sub-basin as a precondition to any new, expanded WMA permit, as well as renewals of existing withdrawal registrations.

3. Implement streamflow requirements so that they "trump" current list of riverine uses.

4. Analyze new wells not only for impact on streams but also ponds, wetlands and existing wells, and provide an assessment of alternatives sufficient to support DEP denials, if impacts are excessive.

5. Where Basin Safe Yield cannot be determined, develop an appropriate substitute methodology that will protect the environment, before issuing new water withdrawal permits.

6. Separately regulate indoor and outdoor water uses for permit purposes and establish outdoor water use limits for May through October (current DEP restrictions are effective only through September in most cases.

7. To obtain a clearer picture of total statewide water withdrawals for purposes of better managing water resources, require annual reporting to the DCR of all private well withdrawals (estimated by well capacity if not metered), require metered reporting for sizable private wells and require DCR to provide this information to the DEP to supplement its data-collection for all public water wells.